

Notice of Allowability**Application No.**

10/577,105

Examiner

HEE-YONG KIM

Applicant(s)

KLEIN GUNNEWIEK ET AL.

Art Unit

2482

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 3/17/2011.
2. ☒ The allowed claim(s) is/are 1 and 4-14.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: ____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date ____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date 3/17/2011
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date ____.
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other ____.

/Chris Kelley/
Supervisory Patent Examiner, AU 2482

DETAILED ACTION

Response to Amendment

1. This office action is in reply to Applicant's Response (RCE) dated March 17, 2011
2. **Claims 1, 4-14** are allowed.

Examiner's Amendment

3. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Alan Limbach (Reg. No. 39,749) on 4/12/2001.

Amend claims 1-4, 9 and 14 as follows.

1. (Currently Amended) A method of converting a first motion vector field into a second motion vector field by determining a first one of the motion vectors of the second motion vector field, the first motion vector field being computed, on basis of a first image and a second image of a sequence of images, for a temporal position between the first image and the second image, the method comprising:

establishing a first group of un-referenced pixels in the first image, by selecting a first set of mutually connected pixels of the first image for which the first motion vector field does not comprise respective motion vectors;

establishing a second group of un-referenced pixels in the second image, by selecting a second set of mutually connected pixels of the second image for which the first motion vector field does not comprise respective motion vectors;

computing a match error of a candidate motion vector, which is oriented from the first group of un-referenced pixels to the second group of un-referenced pixels; and

comparing the match error with a predetermined match threshold and assigning the candidate motion vector to the first one of the motion vectors of the second motion vector field if the match error is below the predetermined match threshold,

wherein establishing the second group of un-referenced pixels is based a spatial environment of the first group of un-referenced pixels and on a particular motion vector which belongs to the first motion vector field and which is located in the spatial environment of the first group of un-referenced pixels.

Claims 2-3: Please cancel.

4. (Currently Amended) A method of converting as claimed in claim 2 1, whereby establishing the second group of un-referenced pixels is based on a spatial environment of the first group of un-referenced pixels and a null motion vector.

9. (Currently Amended) A conversion unit for converting a first motion vector field into a second motion vector field by determining a first one of the motion vectors of the second motion vector field, the first motion vector field being computed, on basis of a first image and a second image of a sequence of images, for a temporal position between the first image and the second image, the conversion unit comprising:

first establishing means for establishing a first group of un-referenced pixels in the first image, by selecting a first set of mutually connected pixels of the first image for which the first motion vector field does not comprise respective motion vectors;

second establishing means for establishing a second group of un-referenced pixels in the second image, by selecting a second set of mutually connected pixels of the second image for which the first motion vector field does not comprise respective motion vectors;

computing means for computing a match error of a candidate motion vector, which is oriented from the first group of un-referenced pixels to the second group of un-referenced pixels; and

comparing means for comparing the match error with a predetermined match threshold and assigning the candidate motion vector to the first one of the motion vectors of the second motion vector field if the match error is below the predetermined match threshold,

wherein establishing the second group of un-referenced pixels is based a spatial environment of the first group of un-referenced pixels and on a particular motion vector

which belongs to the first motion vector field and which is located in the spatial environment of the first group of un-referenced pixels.

14. (Currently Amended) A non-transitory computer-readable medium encoded with a computer program for a method to convert a first motion vector field into a second motion vector field by determining a first one of the motion vectors of the second motion vector field, the first motion vector field being computed, on basis of a first image and a second image of a sequence of images, for a temporal position between the first image and the second image, the method comprising:

establishing a first group of un-referenced pixels in the first image, by selecting a first set of mutually connected pixels of the first image for which the first motion vector field does not comprise respective motion vectors;

establishing a second group of un-referenced pixels in the second image, by selecting a second set of mutually connected pixels of the second image for which the first motion vector field does not comprise respective motion vectors;

computing a match error of a candidate motion vector, which is oriented from the first group of un-referenced pixels to the second group of un-referenced pixels; and

comparing the match error with a predetermined match threshold and assigning the candidate motion vector to the first one of the motion vectors of the second motion vector field if the match error is below the predetermined match threshold;

wherein establishing the second group of un-referenced pixels is based a spatial environment of the first group of un-referenced pixels and on a particular motion vector

which belongs to the first motion vector field and which is located in the spatial environment of the first group of un-referenced pixels.

Allowable Subject Matter

4. The following is an examiner's statement of reasons for allowance.

Independent **claims 1 and 9 and 14** recite "...first establishing means for establishing a first group of un-referenced pixels in the first image, by selecting a first set of mutually connected pixels of the first image for which the first motion vector field does not comprise respective motion vectors; second establishing means for establishing a second group of un-referenced pixels in the second image, by selecting a second set of mutually connected pixels of the second image for which the first motion vector field does not comprise respective motion vectors; wherein establishing the second group of un-referenced pixels is based a spatial environment of the first group of un-referenced pixels and on a particular motion vector which belongs to the first motion vector field and which is located in the spatial environment of the first group of un-referenced pixels..." which are features that are not anticipated nor obvious over the art of record. All the pending dependent claims depend on either of the above independent claims. Therefore, all the pending claims are allowed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on

Statement of Reasons for Allowance.”

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to HEE-YONG KIM whose telephone number is (571)270-3669. The examiner can normally be reached on Monday-Thursday, 8:00am-5pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Kelley can be reached on 571-272-7331. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/HEE-YONG KIM/
Examiner, Art Unit 2482

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April 21, 2011